

ABSTRACT

Assembly and method for measuring the concentration of an analyte in a
5 biological matrix. The assembly includes an implantable optical-sensing element that
comprises a body, and a membrane mounted on the body in a manner such that the
membrane and the body define a cavity. The membrane is permeable to the analyte,
but is impermeable to background species in the biological matrix. A refractive
element is positioned in the cavity. A light source transmits light of a first intensity
10 onto the refractive element, and a light detector receives light of a second intensity
that is reflected from the cavity. A controller device optically coupled to the detector
compares the first and second light intensities, and relates the intensities to analyte
concentration.